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मानक

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Mazdoor Kisan Shakti Sangathan

“The Right to Information, The Right to Live”

“पुराने को छोड़ नये के तरफ”

Jawaharlal Nehru

“Step Out From the Old to the New”

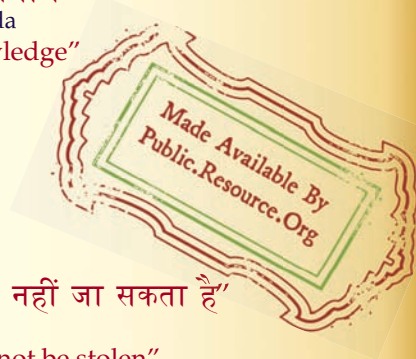
IS 12593 (2000): Hydraulic Fluid Power - Single Rod
Cylinders, 16 MPa (160 bar) Compact Series - Tolerances
[PGD 16: Fluid Power]



“ज्ञान से एक नये भारत का निर्माण”

Satyanarayan Gangaram Pitroda

“Invent a New India Using Knowledge”



“ज्ञान एक ऐसा खजाना है जो कभी चुराया नहीं जा सकता है”

Bhartrhari—Nitiśatakam

“Knowledge is such a treasure which cannot be stolen”

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IS 12593 : 2000

ISO 8131 : 1992

(Reaffirmed 2005)

भारतीय मानक

द्रवचालित तरल शक्ति — एक छड़ वाला सिलिन्डर,
16 मेगापास्कल (160 बार) सघन श्रेणी — छूटें

(पहला पुनरीक्षण)

Indian Standard

HYDRAULIC FLUID POWER — SINGLE ROD
CYLINDERS, 16 MPa (160 bar) COMPACT
SERIES — TOLERANCES

(First Revision)

ICS 23.100.20

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BUREAU OF INDIAN STANDARDS

MANAK BHAVAN, 9 BAHADUR SHAH ZAFAR MARG
NEW DELHI 110002

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Price Group 2

NATIONAL FOREWORD

This Indian Standard (First Revision) which is identical with ISO 8131:1992 'Hydraulic fluid power — Single rod cylinders, 16 MPa (160 bar) compact series — Tolerances' issued by the International Organization for Standardization (ISO) was adopted by the Bureau of Indian Standards on the recommendation of the Hydraulic Fluid Power Systems Sectional Committee and approval of the Basic and Production Engineering Division Council.

In hydraulic fluid power systems, power is transmitted and controlled through a fluid (liquid or gas) under pressure within an enclosed circuit. One component of such systems is the fluid power cylinder. This is a device which converts power into linear mechanical force and motion. It consists of a movable element, that is, a piston and piston rod, operating within a cylindrical bore.

This standard was first published in 1989 by adopting ISO 8131 :1986. The ISO standard has since been revised as ISO 8131 :1992. To align the Indian Standard with international practices, the Sectional Committee dealing with the subject has decided to revise IS 12593:1989 by adopting the above ISO Standard as Indian Standard. The following significant changes have been observed between the two standards:

- a) Table 1 Nominal stroke tolerance has been deleted.
- b) Tables 2 and 3 have been technically modified and renumbered as Table 1 and Table 2.

In the adopted standard certain terminology, conventions and method of presentation are not identical to those used in Indian Standards. Attention is particularly drawn to the following:

- a) Wherever the words 'International Standard' appear referring to this standard, they should be read as 'Indian Standard'.
- b) Comma (,) has been used as a decimal marker while in Indian Standard, the current practice is to use a point (.) as the decimal marker.

In the adopted standard reference appears to certain International Standards for which Indian Standards also exist. The corresponding Indian Standards which are to be substituted in their place are listed below along with their degree of equivalence for the editions indicated:

<i>International Standard</i>	<i>Corresponding Indian Standard</i>	<i>Degree of Equivalence</i>
ISO 5598 : 1985 Fluid power systems and components — Vocabulary	IS 10416 : 1992 Fluid power systems and components -Vocabulary (<i>first revision</i>)	Identical
ISO 6020-2 : 1991 Hydraulic fluid power — Mounting dimensions for single rod cylinders, 16 MPa (160 bar) series — Part 2: Compact series	IS 11003 (Part 2) : 2000 Hydraulic fluid power — Mounting dimensions for single rod cylinders, 16 MPa (160 bar) series : Part 2 Compact series (<i>first revision</i>)	do

The technical committee responsible for the preparation of this standard has reviewed the provisions of the following ISO standard and has decided that it is acceptable for use in conjunction with this standard:

ISO 6099:1985	Fluid power systems and components — Cylinders — Identification code for mounting dimensions and mounting types
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For the purpose of deciding whether a particular requirement of this standard is complied with, the final value, observed or calculated, expressing the result of a test or analysis, shall be rounded off in accordance with IS 2:1960 'Rules for rounding off numerical values (*revised*)'. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

Indian Standard

**HYDRAULIC FLUID POWER — SINGLE ROD
CYLINDERS, 16 MPa (160 bar) COMPACT
SERIES — TOLERANCES**
(First Revision)

1 Scope

This International Standard specifies dimensional tolerances for 16 MPa [160 bar¹⁾] compact series cylinders in accordance with ISO 6020-2 as required for interchangeability of commonly used hydraulic cylinders.

2 Normative references

The following standards contain provisions which, through reference in this text, constitute provisions of this International Standard. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this International Standard are encouraged to investigate the possibility of applying the most recent editions of the standards indicated below. Members of IEC and ISO maintain registers of currently valid International Standards.

ISO 5598:1985, *Fluid power systems and components — Vocabulary*.

ISO 6020-2:1991, *Hydraulic fluid power — Mounting dimensions for single rod cylinders, 16 MPa (160 bar) series — Part 2: Compact series*.

ISO 6099:1985, *Fluid power systems and components — Cylinders — Identification code for mounting dimensions and mounting types*.

3 Definitions

For the purposes of this International Standard, the definitions given in ISO 5598 and the following definitions apply.

3.1 cylinder: A device which converts fluid power into linear mechanical force and motion.

3.2 cylinder **bore**: The internal diameter of the cylinder.

3.3 piston **rod**: The element transmitting mechanical force and motion from the piston.

4 Tolerances

4.1 Stroke tolerances

The stroke tolerance shall be $^{+2}_0$ mm on all strokes up to 1 250 mm.

For longer strokes, select tolerances from national standards or by agreement between the manufacturer and user.

4.2 Tolerances for mounting dimensions

See table 1 for tolerances which are dependent on stroke, and table 2 for tolerances which are independent of stroke.

5 Identification statement (Reference to this International Standard)

Use the following statement in test reports, catalogues and sales literature when electing to comply with this International Standard:

"Tolerances selected in accordance with ISO 8131:1992, *Hydraulic fluid power — Single rod cylinders, 16 MPa (160 bar) compact series — Tolerances*."

1) 1 bar = 0,1 MPa = 10^5 Pa; 1 MPa = 1 N/mm²

Table 1 — Tolerances which are dependent on stroke

Values in millimetres

Code for mounting style ¹⁾	Code for mounting dimensions ¹⁾	Nominal stroke		Table in ISO 6020-2:1991
		up to 1250 mm	above 1250 mm	
Tolerances				
Positions of ports	<i>Y</i>	± 2	2)	1
	<i>PJ</i>	± 1,25		
ME5	<i>ZB</i>	max.		2
ME6	<i>ZJ</i> ²⁾	± 1		3
MP1 MP3	<i>XC</i> ²⁾	± 1,25		4 and 5
MP5	<i>XO</i> ²⁾	± 1,25		6
MS2	<i>XS</i> ²⁾	± 2		7
	<i>ZB</i>	max.		
	<i>SS</i> ²⁾	± 1,25		
MT1	<i>XG</i> ²⁾	± 2		8
	<i>ZB</i>	max.		
MT2	<i>XJ</i> ²⁾	± 1,25		9
	<i>ZB</i>	max.		
MT4	<i>XV</i> ²⁾	± 2		10
	<i>ZB</i>	max.		
MX1 MX2 MX3	<i>BB</i>	+3 0		11 to 13
MX3	<i>ZB</i>	max.		13
MX1 MX3	<i>WH</i> ²⁾	± 2		11 and 13
MX1 MX2 MX3	<i>ZJ</i> ²⁾	± 1		11 to 13

1) See ISO 6099.

2) The tolerances referred to apply to strokes up to and including 1 250 mm. For longer strokes, select tolerances from national standards or by agreement between the manufacturer and user.

Table 2 — Tolerances which are independent of stroke

Table in ISO 6020-2:1991	1				2										3				4				
Code for mounting style ¹⁾	Basic dimensions				ME5										ME6				MP1				
Code for mounting dimensions ¹⁾	A	E		H	B	F	FB	R	RD	TO	UO	VE	VL	WF	FB	R	TO	UO	CB	CD	L	MR	
		mm												mm									
	tol.	max.	Bore 25 to 80 ± 1,5	Bore 100 to 200 ± 2	min.	max.	max.	H13	js13	f8	js13	max.	max.	min.	± 2	H13	js13	js13	max.	A16	H9	min.	max.
Table in ISO 6020-2:1991	5				6						7		8 and 9			10				11 to 13	11 and 13		
Code for mounting style ¹⁾	MP3				MP5						MS2		MT1 MT2			MT4				MX1 MX2 MX3	MX1 MX3		
Code for mounting dimensions ¹⁾	CD	EW	L	MR	CX	EP	EX	LT	MS	Z	LH	SB	TS	TC	TD	UT	TD	TM	UM	UW	TG	B	VD
	tol.	H9	h14	min.	max.	2)	h15	2)	min.	max.	min.	h10	H13	js13	h14	f8	h15	f8	h14	h15	max.	js13	f9
1) See ISO 6099. 2) See table 6 of ISO 6020-2:1991.																							

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Amendments Issued Since Publication

Amend No.	Date of Issue	Text Affected

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